

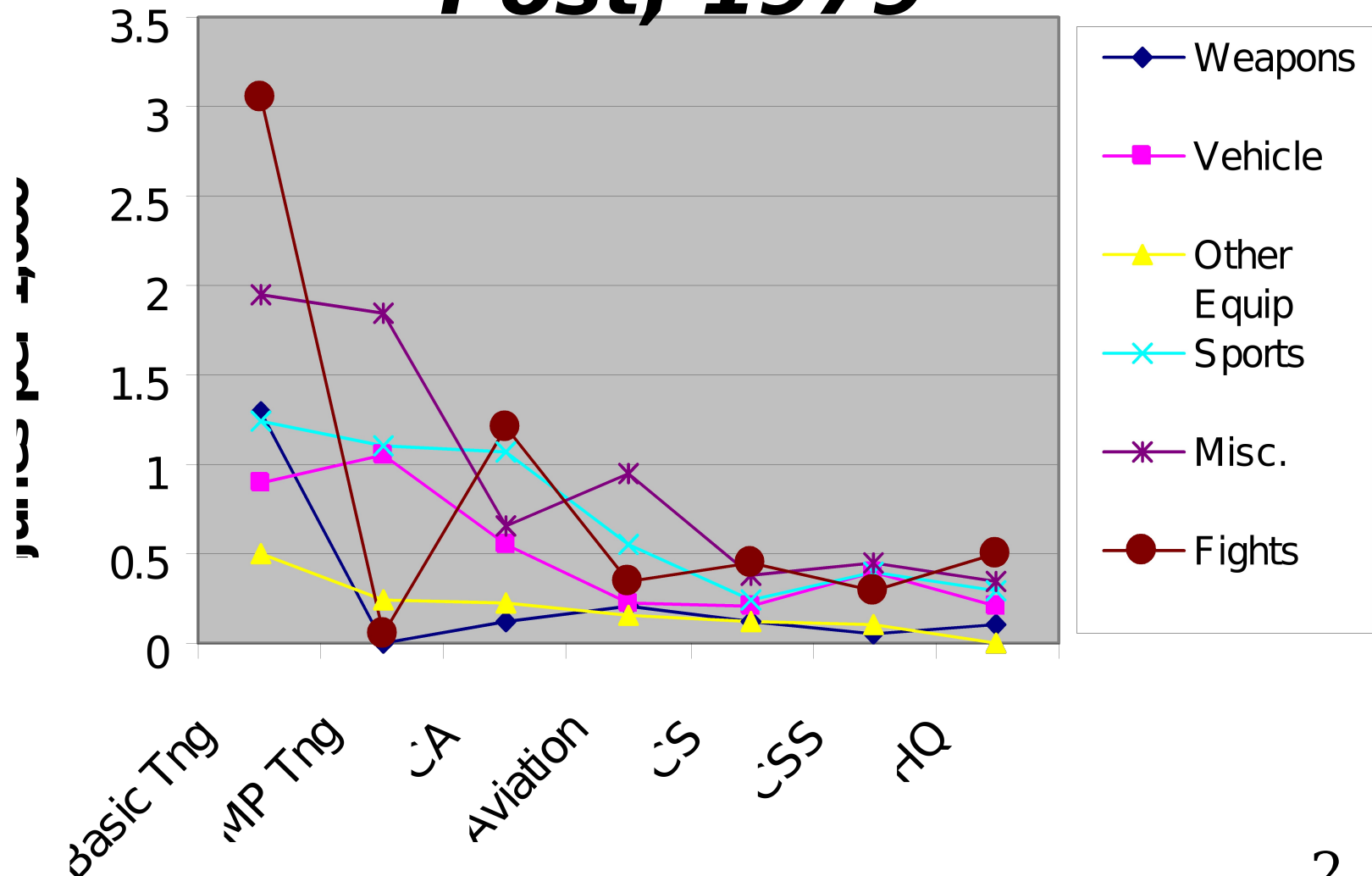


Evidence of Effectiveness of Mouthguards

- ❖ **Army orofacial injury studies**
- ❖ **USACHPPM Evidence-based Review**

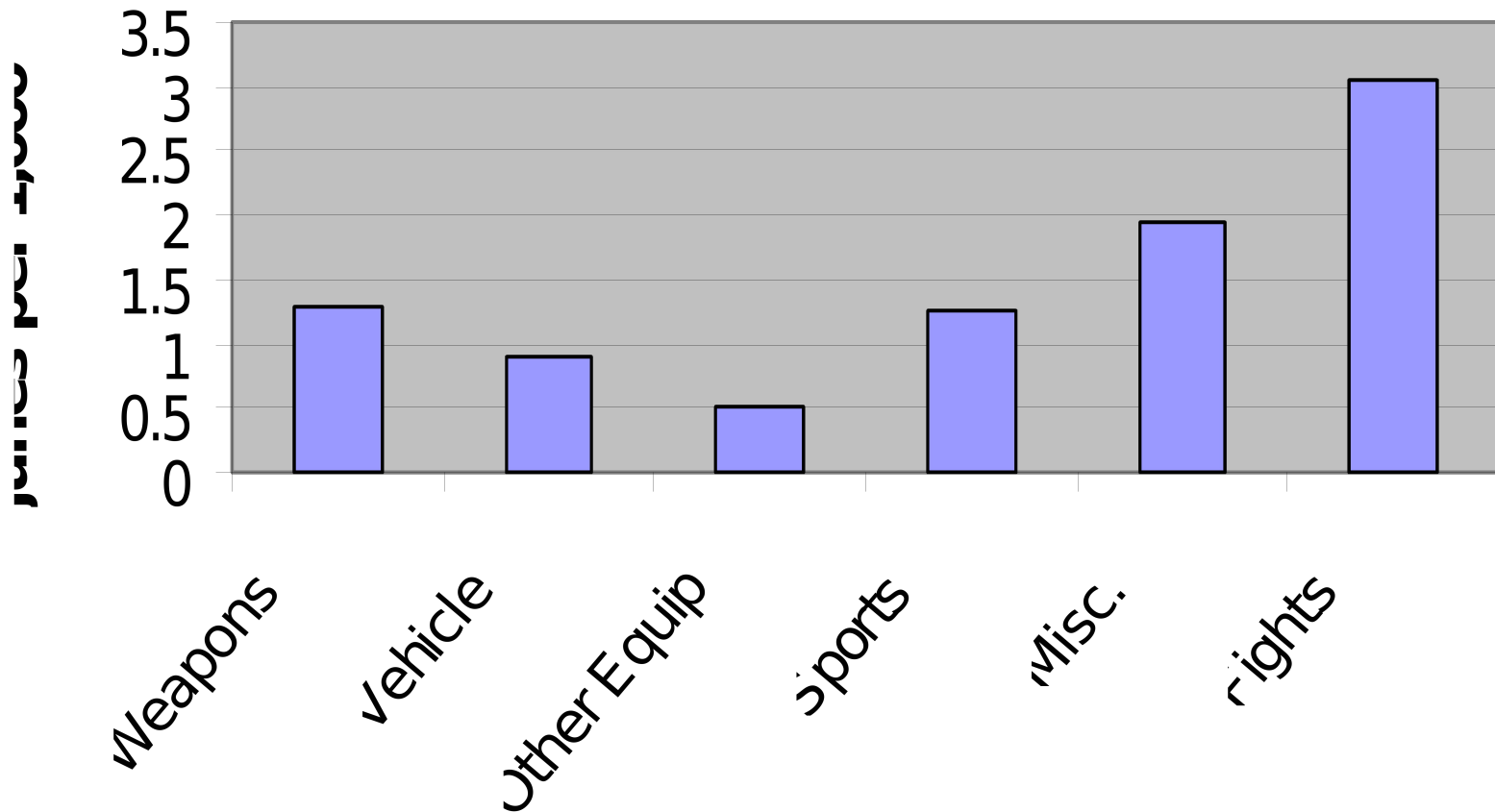


Cause-specific Orofacial Injury Rates by Type of Post, 1979





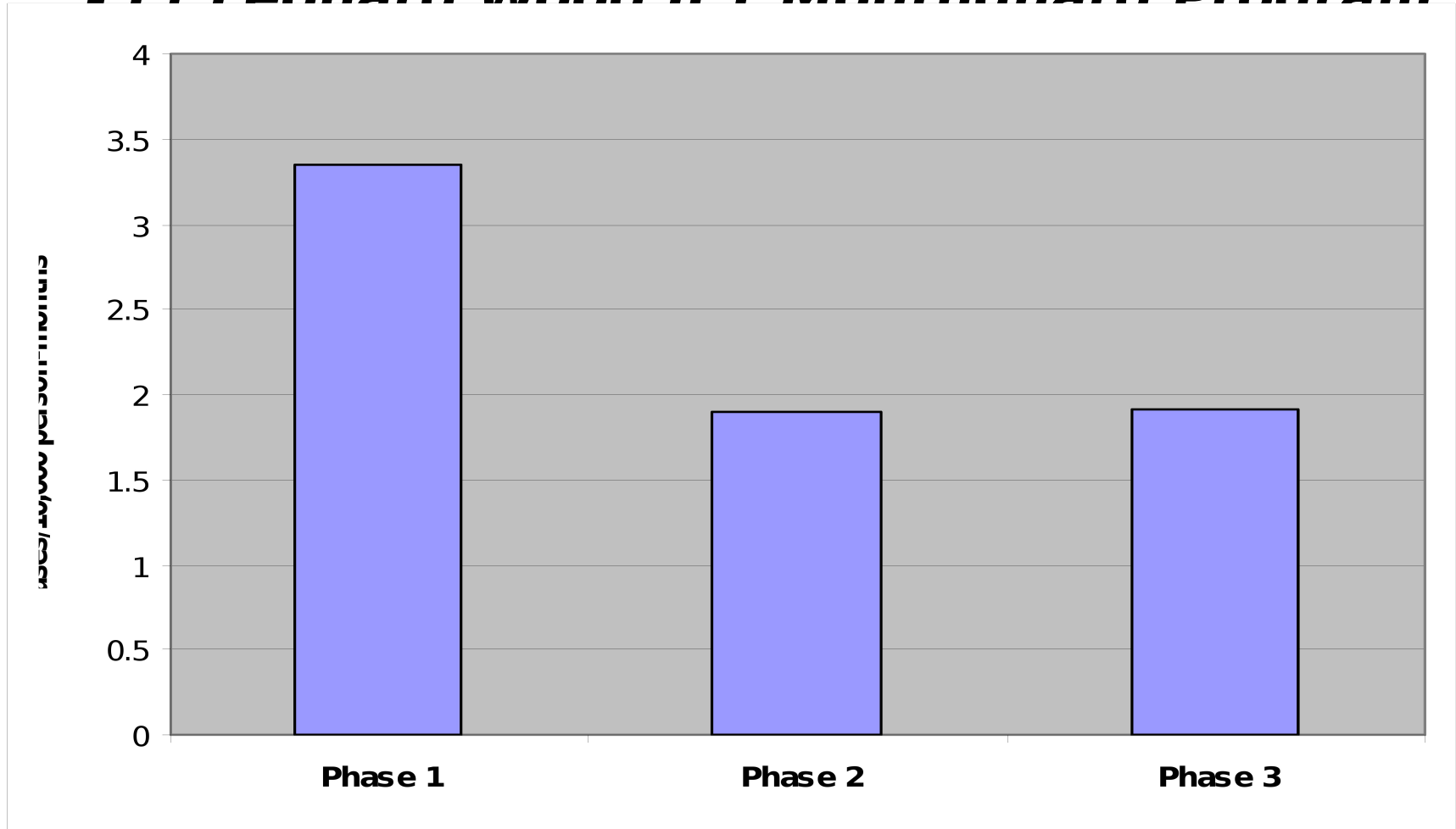
Cause-Specific Orofacial Injuries, Basic Training Posts, 1979*





Orofacial Injuries Among Trainees

- Ft Leonard Wood IFT Mouthguard Program





USACHPPM Review

- ❖ **Mouthguard material and construction**
- ❖ **Effectiveness of mouthguards in preventing orofacial injuries and concussions**



Limitations of Mouthguard Studies

- ❖ **Wide variation in:**
 - ❖ **Population studied**
 - ❖ **Sport studied**
 - ❖ **Injury case definition**
 - ❖ **Data collection**
 - ❖ **Time period**
- ❖ **Pre-1980 studies have low methodological quality**



Review Conclusions

- ❖ **All modern mouthguard materials:**
 - ❖ **Reduce intracranial pressure and mandibular deformation**
 - ❖ **Reduce the number of fractured teeth at a given force**
 - ❖ **Increase the force required to fracture teeth**
 - ❖ **Decrease forces transmitted to the teeth**
 - ❖ **Decrease head acceleration**
 - ❖ **Dampen impact forces**
- ❖ **Large flanges or air gap cushions unnecessary**



Review Conclusions

- ❖ **Meta-analysis results - 1.6 to 1.9 times increased injury risk when no mouthguard**
- ❖ **Evidence for concussion protection inconsistent so far**



Coaches' Mouthguard Information Sources

- ❖ **Sales representatives 72%**
- ❖ **Educational materials 33%**
- ❖ **Dentists 11%**

(DeYoung, Godwin, & Robinson J Dent Res 72:277, 1993)



Types of Mouthguards

Type	Pros	Cons	Comments
Stock	Ready to wear Least expensive Readily available in most sporting goods stores	Less protective Often bulky and uncomfortable May interfere with breathing and speech	Must be held in position by clenching the teeth together May not stay in place in mouth
Boil-and-bite	Slightly better fit Readily available in most sporting goods stores	Less protective than custom-made May not cover teeth adequately May interfere with speech	Are immersed in hot water and formed in the mouth using finger, lip, tongue, and cheek pressure and suction
Custom-made	Most comfortable Best fitting Most protective	More expensive Requires visit to dentist	Requires impression of patient's mouth

(Padilla & Balikov, CDAJ 21:27-37, 1993)



Course of Action for Mouthguard

- ❖ **Educate**
- ❖ **Motivate**
- ❖ **Fabricate**



Educate Everyone

- ❖ **Raise awareness**
- ❖ **Diffuse knowledge**
- ❖ **May influence athletes as a parent, relative, or peer**



Emphasize Points Verbally

- ❖ **“If you play sports, or participate in training activities such as combatives, parachuting, pugil stick, bayonet, or confidence course, you may need a mouthguard.”**
- ❖ **“Mouthguards will help protect your teeth against fractures and loss from sports injuries.”**



Reinforce Verbal Message

- ❖ **Give patients take-home flyers on mouthguards**